

DELAWARE STATE BRIDGE NO. 21A  
Rehoboth Road over Mispillion River  
Milford  
Kent County  
Delaware

HAER No. DE-40

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~~PHOTOGRAPHS~~

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD

National Park Service  
Northeast Region  
Philadelphia Support Office  
U.S. Custom House  
200 Chestnut Street  
Philadelphia, P.A. 19106

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# HISTORIC AMERICAN ENGINEERING RECORD

## DELAWARE STATE BRIDGE NO. 21A

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**LOCATION:** Rehoboth Road over Mispillion River, Milford, Kent County, Delaware. USGS Cedar Creek, Delaware Quadrangle, Universal Transverse Mercator Coordinates: 18.465100.4307700

**DATE OF CONSTRUCTION:** 1929-1930

**ENGINEER:** Keller and Harrington, Consulting Engineers, Chicago, Illinois.

**BUILDER:** Delaware State Highway Department, Warren W. Mack, Chief Engineer, A. G. Livingston, Chief Bridge Engineer

**PRESENT OWNER:** Delaware Department of Transportation

**SIGNIFICANCE:** Bridge 21A is a typical example of a Scherzer-type, rolling-lift bascule bridge, and the operator's house is a standard design used on many movable bridges designed by the firm of Keller and Harrington.

## DESCRIPTION

Delaware State Bridge 21A carries Rehoboth Road over the Mispillion River, approximately one-mile east of the center of Milford, Delaware (Figure 1). The bridge consists of a single-leaf Scherzer-type rolling bascule bridge with a lift span of 56'-6" and two 26' plate girder approach spans. The bridge is 32'-3" in overall width, which includes a 24' roadway and 5' sidewalk cantilevered off the west side. The deck of the lift span is carried by two riveted steel plate girders, 5' in depth. During raising, the lift span rolls on a riveted segmental plate girder along a track on the top of the stationary approach span girder. The bridge is counter-weighted by an overhead concrete counterweight. The electric motor and lift gears are mounted overhead on the lift span in front of the counterweight. The substructure consists of reinforced concrete piers and abutments carried by timber piling.

## HISTORICAL INFORMATION

### Background

Bridge 21A was erected in conjunction with the building of the Milford Cutoff, an entirely new section of road built by the Delaware Highway Department in 1929 and 1930 to relieve traffic congestion along State Route 113 through downtown Milford. Milford Cutoff, later named Rehoboth Road, was constructed through open marshy land which required extensive filling and is therefore not associated with earlier roads or transportation routes (Delaware State Highway Department 1929:15; Milford Chronicle 1930:1).

When Milford Cutoff and Bridge 21A were constructed the Delaware Highway Department was officially twelve years old and reaching a relatively mature stage of its development. The ever increasing demand for better roads during the early 1920s led to the passage of a motor vehicle fuel tax in 1923. The initial one cent per gallon tax was increased to three cents by 1927 and surpassed bond issues as the principal source of revenue for the highway department. According to Warren Mack, Chief Engineer of the Highway Department between 1929 and 1946, road development between 1926 and 1935 was characterized by the consolidation and improvement of the primary system and the development of a secondary system of low cost highways. Experimental road surface materials promising extremely low construction cost per mile were used to extend improved roads into rural farm areas. Considerable effort was also devoted to relieving traffic congestion created by summer beach traffic. The Milford Cutoff is a direct example of those efforts. The dramatic increase in revenues from the gasoline tax also led to an unprecedented amount of bridge construction during this period. In 1927 twenty-three bridges were under design or construction making it the busiest year to date for the Highway Department (Delaware State Highway Department 1927:4; 1929:17; Mack 1947:544, 547, 548).

### History of Bridge 21A

According to the original bridge plans on file with DELDOT, Bridge 21A was designed by the firm of Keller and Harrington Consulting Engineers, located in the Ashland Block, Chicago, Illinois. The contract was administered by A. G. Livingston, Chief Bridge Engineer and Warren W. Mack, Chief Engineer, of the Delaware State Highway Department. The machinery was fabricated by The Earle Gear and Machine Company of Philadelphia. Structural members were supplied by Bethlehem Steel Company of Bethlehem, Pennsylvania. The substructure was built by George Schockly of Rehoboth, Delaware who began work in March of 1929. The superstructure was erected by A. S. Fox of Dayton, Ohio who also built State Bridge 159, a bascule over the Christiana River at Newport (DELDOT 1928:np; P.A.C. Spero 1991:61).

Bridge 21A was highlighted as "the most important bridge completed during the year" in the 1930 Annual Report of the State Highway Department. A photograph in the report taken from the north end of the bridge clearly shows the bridge and operator's house as originally constructed. The bridge was completed at an overall cost of \$60,026, and opened for traffic on August 1, 1930. An article in the local Milford newspaper observed that much of the road was built through marshy land and that although it greatly shortens the distance from that required when passing through Milford, "the scenery through which the travelers pass is not of the best" (Delaware State Highway Department 1930:13; *Milford Chronicle* 1930:1).

In 1985, an inspection of the bridge electrical system by department of transportation engineers revealed dangerously deteriorated wiring and numerous safety features non-operable. It was determined that a complete overhaul of the control system was needed. A new operator's house to accommodate the new electrical controls was recently constructed adjacent to the original operators house.

### REFERENCES CITED

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